Appendix F Economic Impact Analysis Overview (Part Three)

Economic impact analysis was pioneered by an economist named Wassily Leontief who began his work on the subject in 1941. At that time the impact analysis was simply an input-output table for the American economy and required matrix algebra and hand held calculators. Refinements were made to his work and in 1973 he was awarded the Nobel Prize. Now economic impact analysis is essentially a general accounting system of economic transactions between industries, businesses, and consumers that estimates the full range of impacts on sales (output), wages (personal income), jobs (employment), and taxes. It is conducted using computer software (IMPLAN is a widely used type of this software) and paints a much more comprehensive picture of the interactions in an economy. For this impact analysis the IMPLAN input-output (I/O) model was used. IMPLAN was developed in the late-1970s by the United States Forest Service to estimate the economic impact of alternative land management options. In the mid-1980s, researchers at the University of Minnesota began developing IMPLAN for non-Forest Service users. In 1993, a technology transfer agreement with the University of Minnesota led to the Minnesota IMPLAN Group (MIG) taking over development, distribution and support of IMPLAN.[1]

This analysis uses data collected on each sector of the economy (i.e. agriculture, recreation and tourism, etc.) to calibrate the model and derive the direct economic impacts on the Delta. The full range of impacts that result from each sector, the total effect of that sector, is the sum of the direct, indirect, and induced effects:

- ***Direct effects*** are the changes in sales (output), wages (personal income), and jobs (employment) related exclusively to each sector. This includes all sales and costs incurred by both visitors and residents.
- ***Indirect effects*** represent the iterative impacts of inter-industry transactions as supplying industries respond to the increased demands from the direct recipient of these revenues. An example of indirect benefits would include a hotel increasing its purchase of linen to meet the demand of people staying overnight in the Delta.
- ***Induced effects*** reflect household consumption expenditures of direct and indirect sector employees. Examples of induced benefits include employee's expenditures on items such as retail purchases, housing, medical services, banking, and insurance.

In this analysis, the total, direct, and induced effects are presented in four ways:

- ***Employment,*** demonstrates the number of full- and part-time jobs generated on an annual basis.
- ***Labor Income,*** which is also referred to as personal income or employee compensation. It includes wages, salaries, benefits, and all other employer contributions. This measures the financial value of associated employment.
- ***Value Added,*** represents the total value added to a product during the production process.
- ***Output,*** sometimes referred to as revenue or sales, accounts for the total changes in the value of production in an industry for a given time period. This includes revenue from all sources of income to determine current activity levels.

[1] IMPLAN Website (www.implan.com) Accessed 03/30/2010.